

REMARKS

Claims 1-3, 5 and 6 are pending and under consideration in the above-identified application. Claim 2 was cancelled previously.

In the Office Action dated March 23, 2010, the Examiner rejected claims 1-3, 5 and 6.

I. 35 U.S.C. § 103 Obviousness Rejection of Claims

Claim 1 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Nagura et al. (JP 2002 373643) (“JP ‘643”) in view of either Hisashi et al. (U.S. Publication No. 2005 0153205), Fujimoto et al. (U.S. Publication No. 2004 0058245), Park et al. (U.S. Publication No. 2002 0136955) or Masaki et al. (JP 2001 015101).

Claim 3 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Nagura et al. in view of either Hisashi et al., Fujimoto et al., Park et al. or Masaki et al. Applicants respectfully traverse this rejection.

Applicants respectfully traverse the above listed rejections.

The claims require a mechanofused mixture comprising an inorganic compound and a carbonaceous material on substantially the entire surface of the base particles. This coating significantly improves the electron conductivity and high-temperature characteristics of a battery, which as discussed in the specification has not been demonstrated by the various coatings taught by the prior art. Specification, page 4.

Additionally, the claims require that the weight ratio of the compound oxide to the mechanofused mixture is between 98:2 to 70:30 and is represented by the formula A: (B+C). In the required ratio, A is the weight of the lithium-nickel-manganese oxide, B is the weight of the inorganic compound and C is the weight of the carbonaceous material.

As noted by the Examiner, JP '643 fails to teach a mechanofused mixture that includes at least one inorganic compound selected from the group of LiFePO_4 and Li_3PO_4 and a carbonaceous material. The Examiner, however, argues that selecting LiFePO_4 and Li_3PO_4 as coating materials would have been obvious and would have led to the "predictable result" of electron conducting and lithium ion conducting properties. Office Action, page 6. However, a compound of lithium and a transition metal does not lead to improved electron conductivity, and may decrease electron conductivity. Specification, page 4. As such, the use LiFePO_4 and Li_3PO_4 is not obvious as the Examiner suggests. Indeed, the results in Table 1 show that the combination required by the claims show significantly improved high-temperature characteristics. Specification, page 27.

Moreover, the references cited by the Examiner for purposes of teaching LiFePO_4 and Li_3PO_4 do not teach the use of either compound as an active material or a coating. For example, both Yamaura and Takada teach Li_3PO_4 as an electrolyte and Mohwald teaches LiFePO_4 as a pigment. Yamaura, Col. 5, lines 33-37; Takada, col. 1, lines 32-55; Mohwald, Col. 4, lines 4-5, 43-45. As such, these references fail to teach LiFePO_4 and Li_3PO_4 as a coating material. Accordingly, none of the above mentioned references support a prima facie obviousness determination because they do not teach the intended use of LiFePO_4 and Li_3PO_4 , namely a coating.

The Examiner also acknowledges that JP '643 does not teach the ratio of the materials specifically required by the claims. Office Action, page 7. Despite this fact, the Examiner argues that "it is clear that there is an inherent ratio between these two components." *Id.* However, this argument plainly ignores that in order for a range to be optimized, the general conditions of the claim are disclosed in the prior art or the parameter must be recognized as a result effective

parameter. *In re Aller*, 220 F.3d 454 (CCPA 1955); *In re Antonie*, 559 F.2d 618 (CCPA 1977). Here, the general conditions of the claims are clearly not disclosed because the cited references fail to teach the combination of at least one of LiFePO_4 and Li_3PO_4 and a carbonaceous material as a coating. As such, the ratio required by the claims is not obvious in light of the cited references. because the weight ratio taught by JP '643 is not the same as the weight ratio required by the claims because JP '643 teaches a weight ratio for compounds different than those required by the claims.

Claims 5 and 6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nagura et al. in view of either Hisashi et al., Fujimoto et al., Park et al. or Masaki et al. in further view of Yamaura et al. (U.S. Patent No. 4,668,594); Takada et al. (U.S. Patent No. 5,958,281) or Mohwald et al. (U.S. Patent No. 6,475,663). Applicants respectfully traverse this rejection.

As discussed above, the cited references fail to teach the coating required by the claims or the compound oxide to the mechanofused mixture is between 98:2 to 70:30 and is represented by the formula $A:(B+C)$. Accordingly, taken either singularly or in combination with each other, the above cited references fail to teach or even fairly suggest all the requirements of the claims 5 and 6. Thus, claims 5 and 6 are patentable over the cited references. As such, Applicants respectfully request the above rejection be withdrawn.

II. Conclusion

In view of the above amendments and remarks, Applicants submit that all claims are clearly allowable over the cited prior art, and respectfully requests early and favorable notification to that effect.

Respectfully submitted,

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